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*HS*  
PATENT  
Attorney Docket No.: 017516-001320US

TOWNSEND and TOWNSEND and CREW LLP

By: Kim Badie  
Kimberly Badie

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:

NOWLIN, William C. et al.

Application No.: 10/052,204

Filed: January 15, 2002

For: REPOSITIONING AND  
REORIENTATION OF  
MASTER/SLAVE  
RELATIONSHIP IN  
MINIMALLY INVASIVE  
TELESURGERY

Examiner: Unassigned

Art Unit: 3737

PRELIMINARY AMENDMENT

Assistant Commissioner for Patents  
Washington, D.C. 20231

Sir:

Prior to examination of the above-referenced application, please enter the following amendments and remarks.

IN THE SPECIFICATION:

On page 50, please replace the paragraph starting on line 15 with the following:

Once the selected master has been allowed to float, the master may be moved into alignment with the selected tool step 1000 as illustrated in Figure 23A, as was described above with reference to Figure 18. Often, this will occur while the surgeon keeps a hand on the input device, so that the drive motors of the master should move the master at a moderate pace and with a moderate force to avoid injury to the surgeon.

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Master input device 210L may then be coupled to tool C (stabilizer 120 in our example) while tool A is held in a fixed position. This allows the operator to reposition stabilizer 120 against an alternative portion of coronary artery CA. The tool selection process may then be repeated to re-associate the masters with tools A and B while tool C remains fixed. This allows the surgeon to control repositioning of stabilizer 120 without significantly interrupting anastomosis of the coronary artery CA with the internal mammary artery IMA.

On page 52, please replace the paragraph starting on line 28 with the following:

Once the toll and master are designated, the hand-off tool (and any tool previously associated with the designated master) is fixed, and the designated master is allowed to float step 924. The master is then aligned and connected with the tool step 926, as described above.

IN THE CLAIMS:

Please add claims 6-8. There are no amendments to originally filed claims 1-5.

6. (Added) The robotic surgical system of claim 5 wherein the repositioning system is configured to realign the master control device with the image capture device after the image capture device has been repositioned.

7. (Added) The robotic surgical system of claim 5 wherein the repositioning system is configure to inhibit the motion of the image capture device in at least one degree of freedom.

8. (Added) The robotic surgical system of claim 7 wherein the image capture device is inhibited from rotating about its longitudinal axis.

IN THE DRAWINGS:

Applicants submit herewith redlined and corrected Figures 21A, 23B and 24. No new matter is added thereby as Applicants have merely added reference numerals to subject matter that was previously described in the originally filed specification.

REMARKS

Claims 1-8 are pending. Claims 1-8 correspond to claims 13-20 that were previously canceled out of parent application 09/398,960, filed on September 17, 1999. The changes to the specification and drawings correspond to the changes made in the parent '960 application, as requested by Examiner Shaw. No new matter has been added thereby as such amendments merely add reference numbers to subject matter that was originally described in the specification.

If the Examiner believes a telephone conference would expedite prosecution of this application, please telephone the undersigned at 650-326-2400.

Respectfully submitted,

*Craig P. Wong*

Craig P. Wong  
Reg. No. 45,231

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PATENT

**VERSION WITH MARKINGS TO SHOW CHANGES MADE**

On page 50, please replace the paragraph starting on line 15 with the following:

Once the selected master has been allowed to float, the master may be moved into alignment with the selected tool step 1000 as illustrated in Figure 23A, as was described above with reference to Figure 18. Often, this will occur while the surgeon keeps a hand on the input device, so that the drive motors of the master should move the master at a moderate pace and with a moderate force to avoid injury to the surgeon. Master input device 210L may then be coupled to tool C (stabilizer 120 in our example) while tool A is held in a fixed position. This allows the operator to reposition stabilizer 120 against an alternative portion of coronary artery CA. The tool selection process may then be repeated to re-associate the masters with tools A and B while tool C remains fixed. This allows the surgeon to control repositioning of stabilizer 120 without significantly interrupting anastomosis of the coronary artery CA with the internal mammary artery IMA.

On page 52, please replace the paragraph starting on line 28 with the following:

Once the toll and master are designated, the hand-off tool (and any tool previously associated with the designated master) is fixed, and the designated master is allowed to float step 924. The master is then aligned and connected with the tool step 926, as described above.

**IN THE CLAIMS:**

6. (Added) The robotic surgical system of claim 5 wherein the repositioning system is configured to realign the master control device with the image capture device after the image capture device has been repositioned.

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7. (Added) The robotic surgical system of claim 5 wherein the repositioning system is configured to inhibit the motion of the image capture device in at least one degree of freedom.

8. (Added) The robotic surgical system of claim 7 wherein the image capture device is inhibited from rotating about its longitudinal axis.

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**CLEAN VERSION OF ALL PENDING CLAIMS**

**IN THE CLAIMS:**

1. (As filed) A robotic surgical system including  
a surgical manipulator system having a manipulator movably supporting at  
least one surgical instrument with a plurality of degrees of freedom of movement;  
a master controller workstation operatively associated with the  
manipulator to cause selective movement of the instrument in response to inputs from a  
system operator at the workstation; and  
a selectively activatable repositioning system configured to interrupt the  
operative association between the workstation and the manipulator so that the surgical  
instrument can be moved from one position to another, and to reestablish the operative  
association after the surgical instrument has been repositioned.
  
2. (As filed) The robotic surgical system of claim 1, wherein the  
input device is mounted to the manipulator and is configured so that the surgical  
instrument is movable while the input device is held, and wherein the repositioning  
system reestablishes the operative association when the input device is released.
  
3. (As filed) The robotic surgical system of claim 1, wherein the  
surgical instrument comprises an image capture device.
  
4. (As filed) The robotic surgical system of claim 1, wherein the  
surgical instrument comprises a surgical tool having an end effector configured to treat  
tissue.
  
5. (As filed) A robotic surgical system comprising:  
a surgical manipulator system having a moveable image capture device for  
capturing an image of a surgical site and at least one medical instrument having a  
plurality of degrees of freedom of movement;

a workstation having a display operatively connected to the image capture device to display the surgical site, at least one master control device operatively associated with the medical instrument to cause selective movement of the instrument in response to inputs to the master control device, and an image capture device control system operatively associated with the image capture device to cause selective movement of the image capture device; and

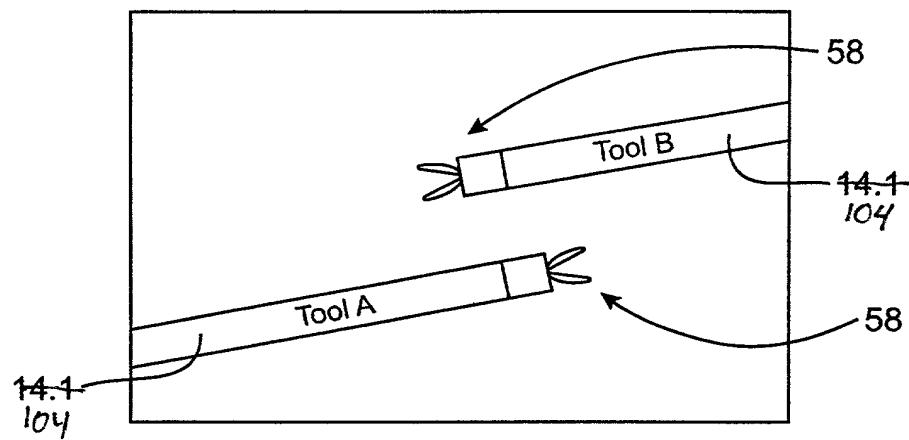
a selectively activatable repositioning system configured to interrupt the operative association between the image capture device control and the image capture device so that the image capture device can be moved from one position to another and to reestablish the operative association after the image capture device has been repositioned.

6. (Added) The robotic surgical system of claim 5 wherein the repositioning system is configured to realign the master control device with the image capture device after the image capture device has been repositioned.

7. (Added) The robotic surgical system of claim 5 wherein the repositioning system is configured to inhibit the motion of the image capture device in at least one degree of freedom.

8. (Added) The robotic surgical system of claim 7 wherein the image capture device is inhibited from rotating about its longitudinal axis.

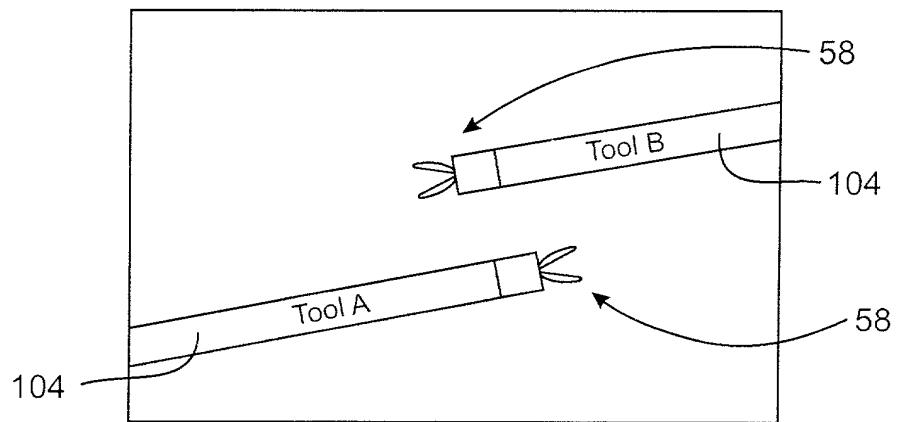
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Associate      Tool A     $\longleftrightarrow$     Left Master

                    Tool B     $\longleftrightarrow$     Right Master

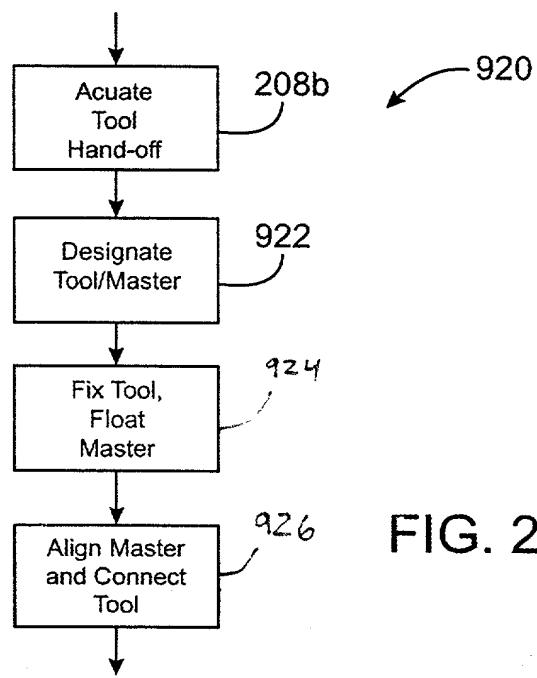
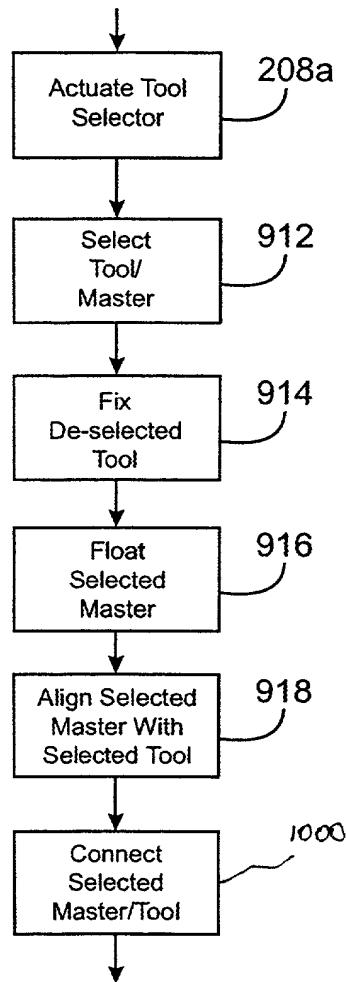
FIG. 21A



Associate      Tool A     $\longleftrightarrow$     Left Master

                    Tool B     $\longleftrightarrow$     Right Master

FIG. 21A



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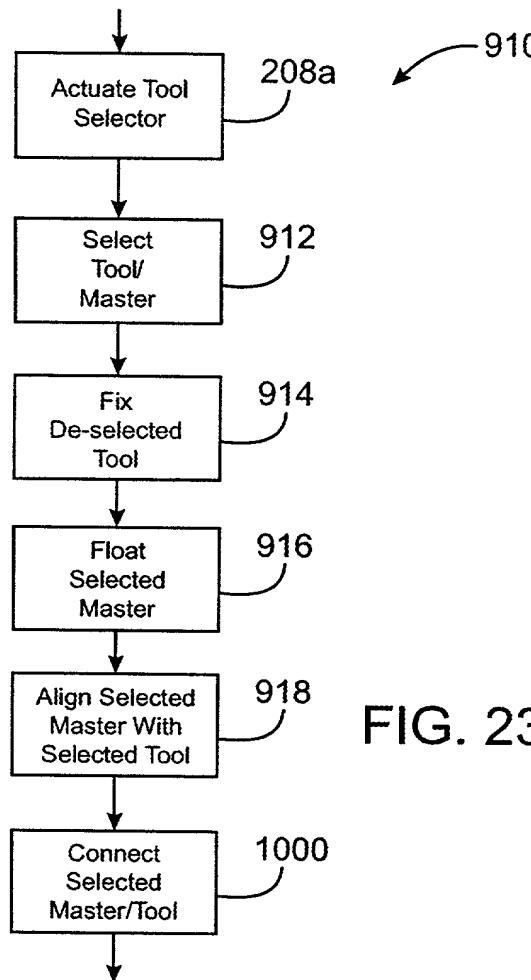


FIG. 23B

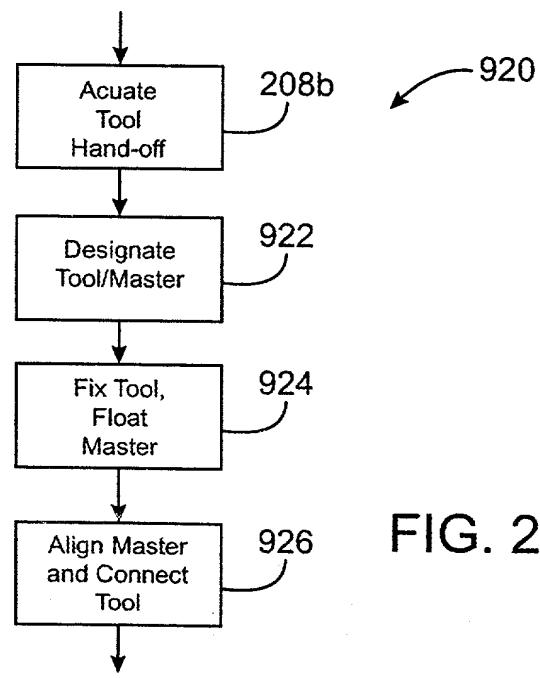


FIG. 24